

ABSTRACT OF DISCLOSURE

This apparatus calculates a direction of a light source (the sun) in a coordinate system having a 3D geometrical model of an object placed therein from geographic information on an object and a shooting time of image data, and detects a shadow region cast on the 3D geometrical model by a beam from a light source direction so as to identify the shadow region in the image data based on correspondence information. It uses a predetermined reflection model to estimate effects of shadings caused to the 3D geometrical model and determines a parameter of a reflection model suited to estimated shadings. And it performs calculation for removing the effects of the shadows and shadings by using the determined parameter from pixel values sampled from the image data so as to fit the calculated pixel values in the 3D geometrical model and generate a texture model.